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L11	L10 not l8	359	L11
L10	l1 same l2 and l4	436	L10
L9	L8 not l5	241	L9
L8	l2 and l4 and L7	251	L8
L7	l1 same l3	703	L7
L6	l1 and l2 and l3 and l4	617	L6
L5	l1 same l2 same l3 same l4	10	L5
L4	density or dense or densify	1158808	L4
L3	cub$5	179841	L3
L2	pressur$8 same temperature	731205	L2
L1	perovskit$4	13930	L1

END OF SEARCH HISTORY

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L9: Entry 10 of 241   File: PGPB   Jul 24, 2003

PGPUB-DOCUMENT-NUMBER: 20030138372
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030138372 A1

TITLE: Method for identifying and synthesizing high dielectric
constant perovskites

PUBLICATION-DATE: July 24, 2003

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APPL-NO: 10/ 185432   [PALM]
DATE FILED: June 28, 2002

RELATED-US-APPL-DATA:
Application 10/185432 is a continuation-in-part-of US application
09/300869, filed April 28, 1999, ABANDONED

INT-CL: [07] C01 B 19/00, G06 G 7/48, G06 G 7/58

US-CL-PUBLISHED: 423/508; 703/12
US-CL-CURRENT: 423/508; 703/12

REPRESENTATIVE-FIGURES: NONE

ABSTRACT:

A method for forming stable structures which includes identifying
compositions having a high probability of forming stable structures
using predictive modeling and synthesizing the compositions under
high pressure and high temperature conditions to form the stable
structures. Preferred stable structures are perovskites having a
three-dimensional framework of corner-linked MX.sub.6 octahedra.
The predictive modeling allows evaluation of structural stabilities
of given compositions while providing hypothetical molar volumes.

It also estimates the molecular polarizability of the compositions from the atomic polarizabilities of its constituent ions. The predictive modeling also calculates the relative dielectric constant of the stable structures using the Clausius-Mossotti relationship and selects compositions having combinations of ions with complimentary ionic radii and bonding preferences. The synthesis of the identified compositions is carried out using high temperature and high pressure techniques to induce a structural transition of the composition to a denser phase.

[0001] This application is a continuation-in-part of U.S. patent application Ser. No. 09/300,869, filed on Apr. 28, 1999.